

Installing the IPS 4510 and IPS 4520

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Installation Notes and Caveats

Pay attention to the following installation notes and caveats before installing the IPS 4510 and IPS 4520.

Note Read through the entire guide before beginning any of the installation procedures.

Warning **Only trained and qualified personnel should install, replace, or service this equipment.** Statement 49

Caution Read the safety warnings in the *Regulatory Compliance and Safety Information for the Cisco Intrusion Prevention System 4500 Series Sensor Appliance* document and follow proper safety procedures when performing the steps in this guide.

Product Overview

The IPS 4510 delivers 3Gbps of intrusion prevention performance based on real world deployment traffic patterns. You can use the IPS 4510 to protect multi-Gbps aggregated traffic traversing switches from multiple subnets and for medium sized data centers. The IPS 4510 is a purpose-built device that has support for both copper and fiber NIC environments thus providing flexibility of deployment in any environment. Based on the ASA 5585-X chassis, the IPS 4510 provides a proven hardware environment for stand-alone IPS protection. It ships with one power supply module, but optional redundant, hot-swappable power supply modules are available as well as hot-swappable fan modules in case of failures. All port numbers are numbered from right to left beginning with 0. This platform replaces the IPS 4270-20.

The IPS 4520 delivers 5 Gbps of intrusion prevention performance. You can use the IPS 4520 to protect multi-Gigabit networks and aggregated traffic traversing switches from multiple subnets. The IPS 4520 is a purpose-built device that has support for both copper and fiber NIC environments thus providing flexibility of deployment in any environment. The IPS 4520 ships with two power supply modules, but optional redundant, hot-swappable power supply modules are available as well as hot-swappable fan modules in case of failures. All port numbers are numbered from right to left beginning with 0. It is also based on the ASA 5585-X chassis.

Both the IPS 4510 and IPS 4520 have a console port, an auxiliary port, two 1 Gb (copper) management ports, and a total of 10 data ports—6 GigabitEthernet copper ports and 4 SFP/SFP+ module (1 or 10 Gb) ports.

Note The management ports are Management 0/0 and Management 0/1. Management 0/1 is reserved for future use.

Note Online insertion and removal (OIR) of the SFP/SFP+ module, power supply module, and fan module is supported.

Caution If you remove a power supply or fan module, replace it immediately to prevent disruption of service.

IDM

The IPS 4510 and IPS 4520 support the Intrusion Prevention System Device Manager (IDM) 7.1.4 and later. IDM delivers security management and monitoring through an intuitive, easy-to-use web-based management interface. IDM is a Java Web Start application that enables you to configure and manage your IPS 4510 and IPS 4520. IDM is bundled with IPS 7.1. You can access it through Internet Explorer or Firefox web browsers.

IME

The Intrusion Prevention System Manager Express (IME) 7.2.3 and later also support the IPS 4510 and IPS 4520. IME is a network management application that provides system health, events, and collaboration monitoring in addition to reporting and configuration for up to ten sensors. IME monitors sensor health using customizable dashboards and provides security alerts through RSS feed integration from the Cisco Security Intelligence Operations site. It monitors global correlation data, which you can view in events and reports. It monitors events and lets you sort views by filtering, grouping, and colorization. IME also supports tools such, as ping, trace route, DNS lookup, and whois lookup for selected events. It contains a flexible reporting network. It embeds the IDM configuration component to allow for a seamless integration between the monitoring and configuration of IPS devices. Within IME you can set up your sensors, configure policies, monitor IPS events, and generate reports. IME works in single application mode—the entire application is installed on one system and you manage everything from that system.

Chassis Features

This section describes the IPS 4510 and IPS 4520 chassis features and indicators. Figure 7-1 shows the grounding lug on the left side of the chassis (when facing the front of the chassis).

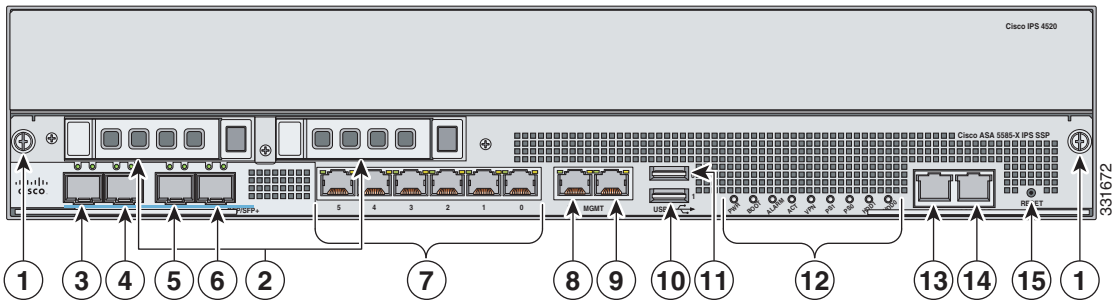
Figure 7-1 IIPS 4510 and IPS 4520 Side Chassis View



1	Grounding lug

Figure 7-2 shows the front view of the IPS 4510 and IPS 4520.

Figure 7-2 IPS 4510 and IPS 4520 Front Panel Features

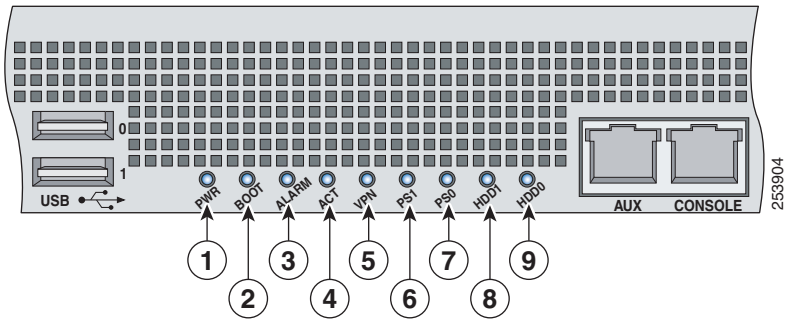


1	Removal screws	**2**	Reserved bays for hard disk drives[1]
3	TenGigabitEthernet 0/9 (1-Gb and 10-Gb fiber SFP/SFP+ modules)	**4**	TenGigabitEthernet 0/8 (1-Gb and 10-Gb fiber SFP/SFP+ modules)
5	TenGigabitEthernet 0/7 (1-Gb and 10-Gb fiber SFP/SFP+ modules)	**6**	TenGigabitEthernet 0/6 (1-Gb and 10-Gb fiber SFP/SFP+ modules)
7	GigabitEthernet 0/0 through 0/5 (from right to left, 1-Gb copper RJ45)	**8**	Management 0/1[2] (GigabitEthernet RJ45)
9	Management 0/0 (GigabitEthernet RJ45)	**10**	USB port
11	USB port	**12**	Front panel indicators
13	Auxiliary port (RJ45)	**14**	Console port (RJ45)
15	Reset[3]		

1. Hard disk drives are not supported at this time. The hard disk drive bays are empty.
2. Reserved for future use.
3. Reserved for future use.

Figure 7-3 shows the front panel indicators.

Figure 7-3 Front Panel Indicators



1	PWR	**2**	BOOT
3	ALARM	**4**	ACT[1]
5	VPN[2]	**6**	PS1
7	PS0	**8**	HDD1[3]
9	HDD2[4]		

1. Not supported at this time.
2. Not supported at this time.
3. Not supported at this time.
4. Not supported at this time.

Table 7-1 describes the front panel indicators on the IPS 4510 and IPS 4520.

Table 7-1 Front Panel Indicators

Indicator	Description
PWR	Indicates whether the system is off or on: • Off—No power. • Green—System has power.
BOOT	Indicates how the power-up diagnostics are proceeding: • Flashing green—Power-up diagnostics are running or the system is booting. • Green—System has passed power-up diagnostics. • Amber—Power-up diagnostics failed.
ALARM	Indicates whether a component has failed: • Off—No alarm. • Flashing yellow—Critical alarm. Major failure of hardware component or software module, temperature over the limit, power out of tolerance, or OIR is ready to remove the module.[1]
ACT	Not supported at this time.
VPN	Not supported at this time.

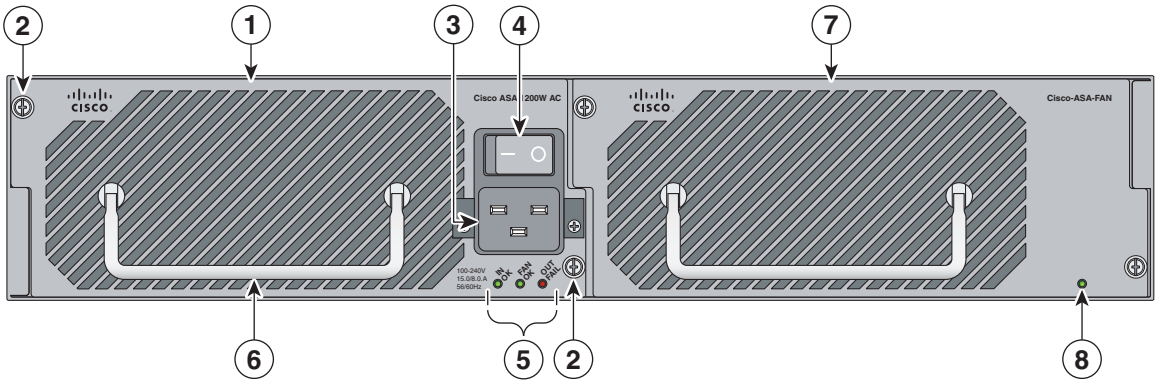
Table 7-1 Front Panel Indicators (continued)

Indicator	Description
PS1	Indicates the state of the power supply module installed on the right when facing the back panel: • Off—No power supply module present or no AC input. • Green—Power supply module present, on, and good. • Amber—Power or fan module off or failed.
PS0	Indicates the state of the power module installed on the left when facing the back panel: • Off—No power supply module present or no AC input. • Green—Power supply module present, on, and good. • Amber—Power or fan module off or failed.
HDD1[2]	Indicates activity on the hard disk drive: • Off—No hard disk drive present. • Flashing green—Hard disk drive activity. • Amber—Hard disk drive failure.
HDD2[3]	Indicates activity on the hard disk drive: • Off—No hard disk drive present. • Flashing green—Hard disk drive activity. • Amber—Hard disk drive failure.

1. OIR is not available at this time.
2. The hard disk drive bays are reserved for future use.
3. The hard disk drive bays are reserved for future use.

Figure 7-4 shows the back panel features.

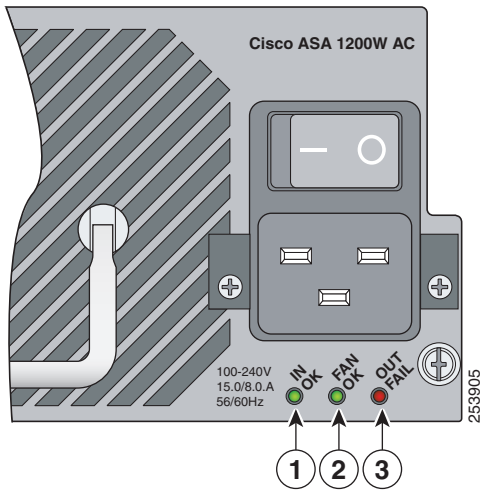
Figure 7-4 Back Panel Features



1	Power supply module (corresponds to PS1 indicator)	**2**	Power supply module/fan module removal screws
3	Power supply module plug	**4**	Toggle On/Off switch for power supply module
5	Power supply module indicators	**6**	Power supply module or fan module handle
7	Fan module	**8**	Fan module indicator

Figure 7-5 shows the power supply module indicators.

Figure 7-5 Power Supply Module Indicators



1	IN OK	**2**	FAN OK
3	OUT FAIL		

Table 7-2 describes the power supply module and fan module indicators.

Table 7-2 Power Supply Module and Fan Module Indicators

Indicator	Description
IN OK	Indicates status of power supply module: • Off—No AC power cord connected or AC power switch off. • Green—AC power cord connected and AC power switch on.
FAN OK	Indicates status of fan module • Off—Fan module failure or AC power switch off. • Green—AC power cord connected, AC power switch on, and internal fan is running.
OUT FAIL	• Red—Output voltage failure[1]

1. The power supply module has three output voltages—3.3V, 12V, and 50V.

Table 7-3 describes the Ethernet port indicators.

Table 7-3 Ethernet Port Indicators

Indicator	Description
Gigabit Ethernet (RJ45)	• Left side: – Green—Physical activity – Flashing green—Network activity • Right side: – Not lit—10 Mbps – Green—100 Mbps – Amber—1000 Mbps

Table 7-3 Ethernet Port Indicators (continued)

Indicator	Description
10-Gigabit Ethernet Fiber (SFP+)/1-Gigabit Ethernet Fiber (SFP)	• Left side: – Off—No 10-Gigabit Ethernet physical link – Green—10-Gigabit Ethernet physical link – Flashing green[1]—Network activity • Right side: – Off—No 1-Gigabit Ethernet physical link – Green—1-Gigabit Ethernet physical link – Flashing green[1]—Network activity
Management port	• Left side: – Green—Physical activity – Flashing green—Network activity • Right side: – Not lit—10 Mbps – Green—100 Mbps – Amber—1000 Mbps

1. Flashing is in proportion to the percentage of number of packets or bytes received.

Specifications

Table 7-4 lists the specifications for the IPS 4510 and IPS 4520.

Table 7-4 IPS 4510 and IPS 4520 Specifications

Dimensions and Weight	
Height	3.47 in (8.8 cm)
Width	19 in (48.3 cm)
Depth	26.5 in (67.3 cm)
Weight	50 lb (22.7 kg)
Form factor	2 RU, standard 19-inch rack-mountable
Power	
Rated input voltage (per power supply module)	100 to 127 VAC 200 to 240 VAC
Rated input frequency	50 to 60 Hz
Rated input power	1465W @ 100 VAC 1465W @ 200 VAC
Rated input current	12A (100 VAC) 8A (200 VAC)

Table 7-4 IPS 4510 and IPS 4520 Specifications (continued)

Maximum heat dissipation	3960 BTU/hr (100 VAC) 5450 BTU/hr (200 VAC)
Power supply output steady state Maximum peak	1200W 1200W
Environment	
Temperature	Operating 32°F to 104°F (0°C to 40°C) Nonoperating -40°F to 158°F (-40°C to 70°C)
Airflow	Front to back
Relative humidity (noncondensing)	Operating 10% to 90% Nonoperating 5% to 95%
Altitude	Operating 0 to 3000 ft (9843 ft) Nonoperating 0 to 4570 ft (15,000 ft)
Shock	Operating Half-sine 2 G, 11 ms pulse, 100 pulses Nonoperating 15 G, 170 in/sec delta V
Vibration	2.2 Grms, 10 minutes per axis on all three axes
Noise	65 dBa max

Accessories

The contents of the sensor packing box contains the following items you need to install the sensor:

- Sensor chassis
- Documentation
- 2 Yellow Ethernet cables
- Blue console cable PC terminal adapter
- Power cable 120V

Note The IPS 4510 ships with one power supply module installed and one power cable. The IPS 4520, ships with two power supply modules installed and two power cables.

- Screws
- Cable management brackets
- Front and rear rack-mount brackets
- Slide rail kit hardware
- Slide rail kit

Memory Configurations

The IPS 4510 and IPS 4520 have up to 6 DIMM modules per CPU. DIMM population is platform-dependent. Table 7-5 shows the memory configurations.

Table 7-5 Memory Configurations

Model	Memory
IPS 4510	24-GB DRAM
IPS 4520	48-GB DRAM

Power Supply Module Requirements

Table 7-6 lists the power supply module requirements.

Table 7-6 Power Supply Module Requirements

	50 V	12 V	3.3 V_STBY
Output Voltage			
Maximum	52.0 V	12.2. V	3.45 V
Nominal	50.0 V	12.0 V	3.35 V
Minimum	48.0 V	11.8 V	3.25 V
Output Current @ 200 VAC			
Maximum	17.3 A	27.0 A	1.5 A
Minimum	0	0	0
Output Current @ 100 VAC			
Maximum	17.3 A	27.0 A	1.5 A
Minimum	0	0	0

Note The IPS 4520 requires two power supply modules.

Supported SFP/SFP+ Modules

The SFP/SFP+ module is a hot-swappable input/output device that plugs into the SFP/SFP+ ports and provides Gigabit Ethernet connectivity. The SFP and SFP+ modules are optional and not included with the IPS 4510 and IPS 4520. You can purchase them separately. For 1 Gb, you need SFP. For 10Gb, you need SFP+. The interfaces are called TenGigabitEthernet 0/*x* whether they are 10 Gb-enabled or not.

Table 7-7 lists the SFP/SFP+ modules that the IPS 4510 and IPS 4520 support.

Table 7-7 SFP/SFP+ Modules

1G SFP Module	
GLC-SX-MM	1000 Base-SX SFP module
GLC-SX-MMD	1000BASE-SX short wavelength, with DOM
GLC-LH-SM	1000 Base-LX/LH SFP module
GLC-LH-SMD	1000BASE-LX/LH long-wavelength, with DOM
GLC-T	1000BASE-T standard
10G SFP+ Module	
SFP-10G-ER	10G ER SFP+ module
SFP-10G-SR	10G SR SFP+ module
SFP-10G-LRM	10G LRM SFP+ module
SFP-10G-LR	10G LR SFP+ module
SFP-H10GB-ACU7M	10GBASE-CU SFP+ Cable 7 Meter, active
SFP-H10GB-ACU10M	10GBASE-CU SFP+ Cable 10 Meter, active
SFP-H10GB-CU1M	10GBASE-CU SFP+ cable 1 meter, passive
SFP-H10GB-CU3M	10GBASE-CU SFP+ cable 3 meter, passive
SFP-H10GB-CU5M	10GBASE-CU SFP+ cable 5 meter, passive

Installing the IPS 4510 and IPS 4520

The IPS 4510 and IPS 4520 have two dedicated Gigabit Ethernet interfaces for device management that are called Management 0/0 and Management 0/1. The additional interface, Management 0/1 is reserved for future use. The management interfaces are similar to the console port, because they only accept traffic that is destined to-the-box (versus traffic that is through-the-box).

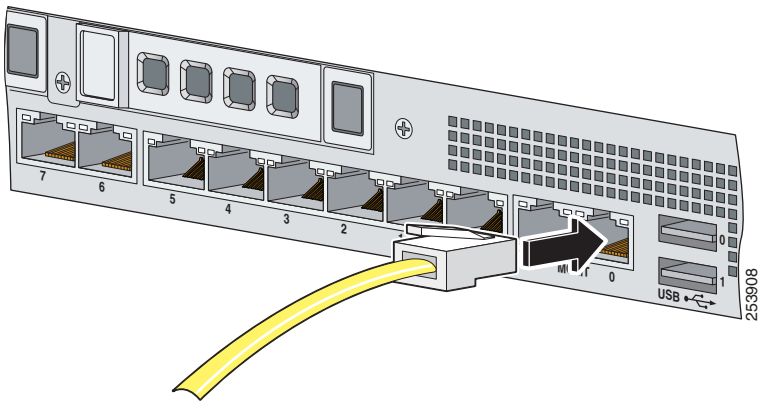
To connect the IPS 4510 and IPS 4520 cables to the network interfaces, follow these steps:

Step 1 Place the sensor on a flat, stable surface, or in a rack (if you are rack-mounting it).

Step 2 Connect to the management interface, Management 0/0.

a. Locate an Ethernet cable, which has an RJ-45 connector on each end.

b. Connect one RJ-45 connector to the Management 0/0 interface.



c. Connect the other end of the Ethernet cable to the Ethernet port on your computer or to your management network.

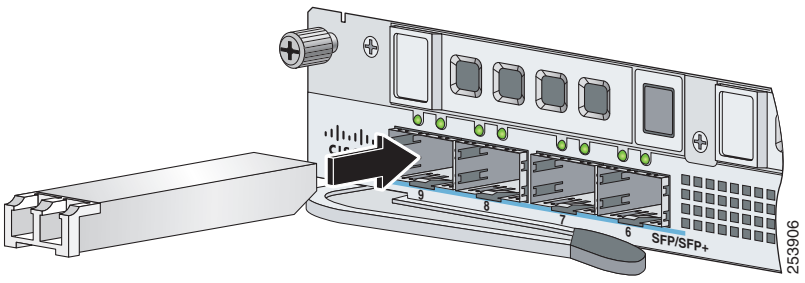
Caution Management and console ports are privileged administrative ports. Connecting them to an untrusted network can create security concerns.

Step 3 (Optional) Connect to the sensor console port if you want to use the IPS CLI. Use the console port to connect to a computer to enter configuration commands.

a. Before connecting a computer or terminal to any ports, determine the baud rate of the serial port. The baud rate of the computer or terminal must match the default baud rate (9600 baud) of the console port of the adaptive security appliance. Set up the terminal as follows: 9600 baud (default), 8 data bits, no parity, 1 stop bits, and Flow Control (FC) = Hardware.

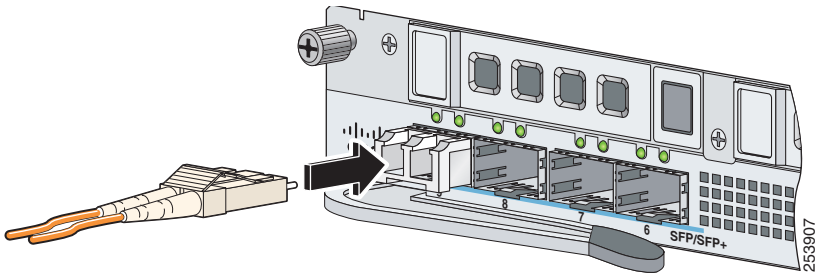
b. Connect the RJ-45 to the console port and connect the other end to your computer.

Step 4 (Optional) Connect to the SFP/SFP+ port if you are using fiber ports. The IPS 4510 and the IPS 4520 have four SFP/SFP+ ports. If you are using the fiber ports, you need an SFP+ module for 10-Gigabit Ethernet or an SFP module for 1-Gigabit Ethernet (SFP or SFP+ modules are not included).



a. Install the SFP/SFP+ module.

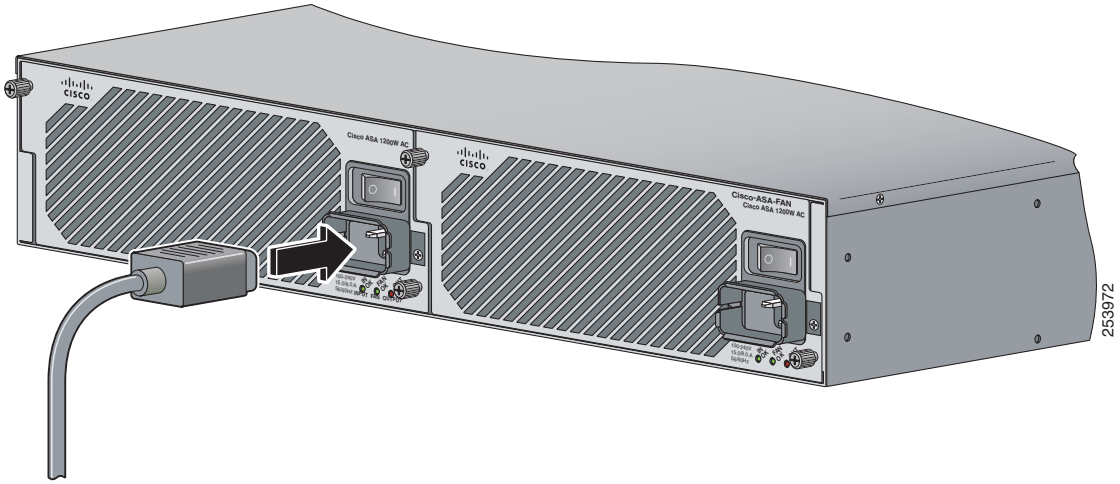
b. Connect one end of the LC cable to the SFP/SFP+ module.



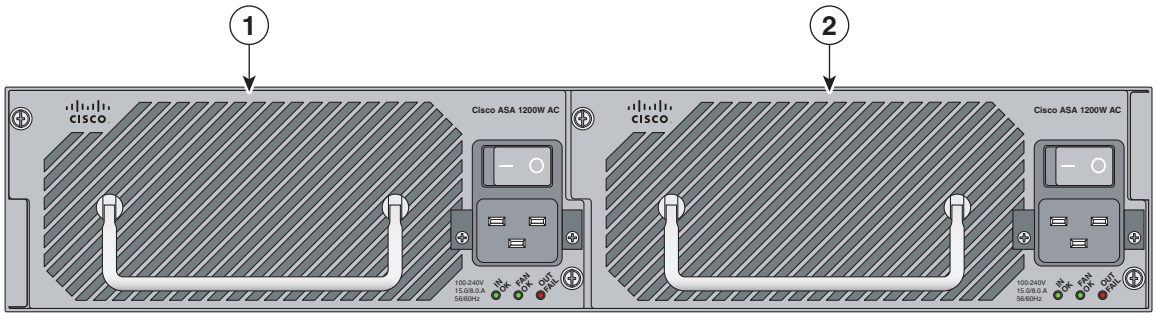
c. Connect the other end of the LC cable to a network device, such as a router or switch.

Step 5 Install the electrical cables.

a. Attach the power cable to the power supply module on the back of the sensor.



b. If you have redundant power supply modules, you must connect both power cables to the back of the sensor.



1	Power supply module (PS0)	**2**	Power supply module (PS1)

c. Plug the power cable(s) in to a power source (we recommend a UPS).

Step 6 Power on the sensor.

Caution If the appliance is subjected to environmental overheating, it shuts down and you must manually power cycle it to turn it on again.

Step 7 Check the PWR indicator on the front panel of the sensor to verify power socket connectivity. It should be green. To verify power supply operation, check the PS0 and PS1 indicators on the front panel. They should be green. On the back panel of the sensor, make sure the IN OK and the FAN OK indicators are green and the OUT FAIL indicator is off.

For More Information

For a list of the supported SFP/SFP+ modules, see Supported SFP/SFP+ Modules, page 7-11.

Removing and Installing the Core IPS SSP

You can uninstall the core IPS SSP in the IPS 4510 and IPS 4520, for example, if you need to move it to a different chassis or replace it.

To remove and install the core IPS SSP in the IPS 4510 and IPS 4520, follow these steps:

Step 1 Log in to the CLI.

Step 2 Prepare the sensor to be powered off. Wait for the power down message before continuing with Step 3.

```
sensor# reset powerdown
```

Note You can also power off the sensor using the IDM or the IME.

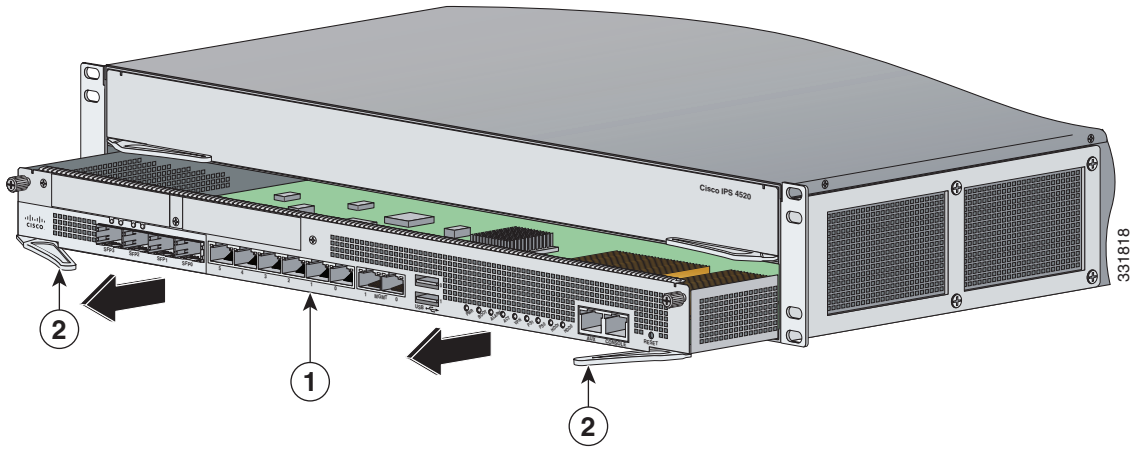
Step 3 Press **Enter** to confirm.

Step 4 Power off the sensor.

Step 5 Remove the power cable from the sensor.

Step 6 From the front panel of the sensor, loosen the captive screws from the bottom slot.

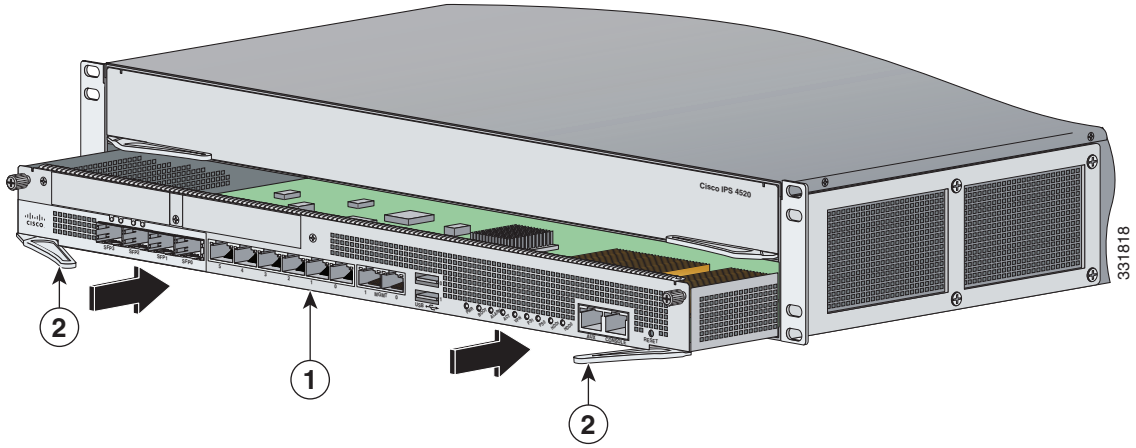
Step 7 Grasp the ejection levers at the left and right bottom of the designated slot and pull them out.



1	Module	**2**	Ejection levers

Step 8 Grasp the sides of the module and pull it all the way out of the chassis.

Step 9 Install the new module by lining it up with the module slot making sure the ejection levers are extended.



1	Module	**2**	Ejection levers

Step 10 Slide the module into the slot until it is seated and push the ejection levers back into place.

Step 11 Tighten the screws.

Step 12 Reconnect the power cable to the sensor.

Step 13 Power on the sensor.

Step 14 Verify that the PWR indicator on the front panel is green.

Removing and Installing the Power Supply Module

The IPS 4510 ships with one power supply module and one fan module installed, and the IPS 4520 ships with two power supply modules installed in a load balancing/sharing configuration. This configuration ensures that if one power supply module fails, the other power supply module assumes the full load until the failed power supply module is replaced. To maintain airflow, both bays must be populated by either a power supply module and a fan module or two power supply modules.

You can replace the fan module with a second power supply module in the IPS 4520 to create a redundant power supply module configuration. If you already have two power supply modules installed, you can install or replace either power supply module without powering off the sensor, as long as one power supply module is active and functioning correctly.

If only one power supply module is installed, do not remove the power supply module unless the sensor has been powered off. Removing the only operational power supply module causes an immediate power loss.

Caution If you remove a power supply or fan module, replace it immediately to prevent disruption of service.

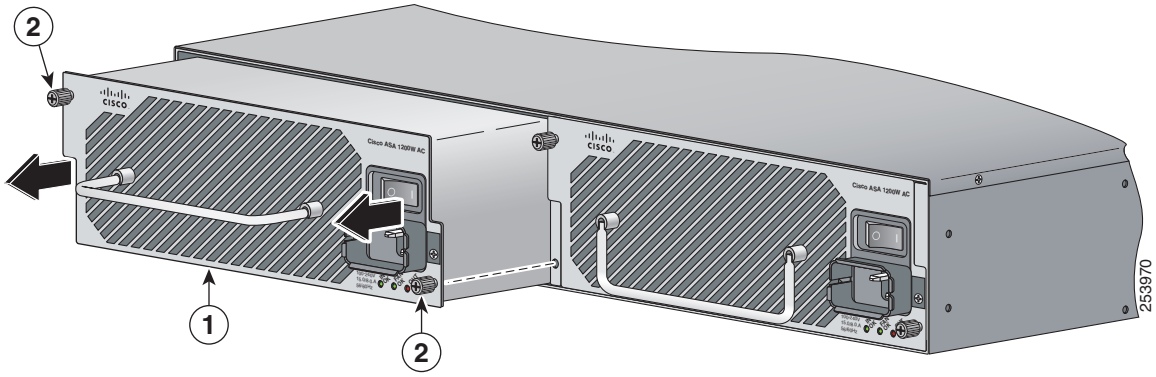
Caution If the appliance is subjected to environmental overheating, it shuts down and you must manually power cycle it to turn it on again.

To remove and install the power supply module, follow these steps:

Step 1 If you are removing the only power supply module, power off the sensor.

Step 2 From the back panel of the sensor, unplug the power supply module cable.

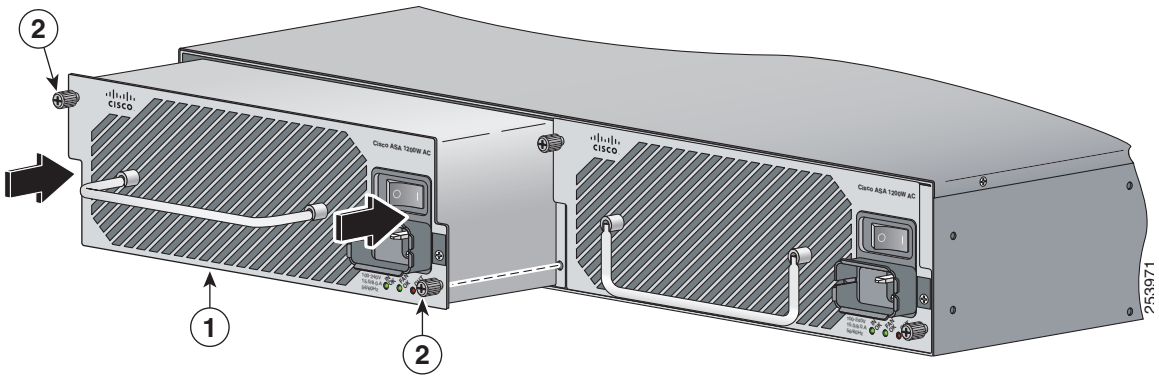
Step 3 On the back of the sensor, loosen the captive screws from the power supply module.



1	Power supply module and power supply module handle	2	Power supply module screws

Step 4 Remove the power supply module by grasping the handle and pulling the power supply module away from the chassis.

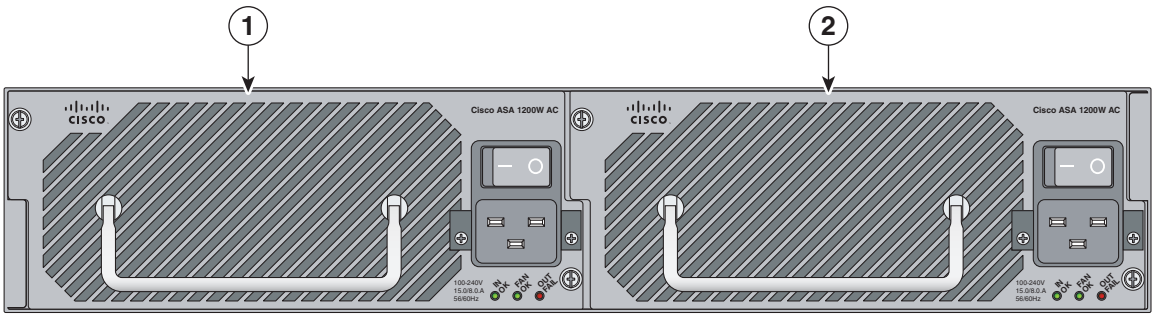
Step 5 Install the new power supply module by aligning it with the power supply module bay and pushing it into place until it is seated.



1	Power supply module and power supply module handle	**2**	Power supply module screws

Step 6 Tighten the captive screws.

Step 7 Reconnect the power cable. If you are installing two power supply modules for a redundant configuration, plug each one into a power source (we recommend a UPS).



1	Power supply module (PS0)	2	Power supply module (PS1)

Step 8 If you had to power off the sensor because you are removing and replacing the only power supply module, power it back on.

Step 9 Check the PS0 and PS1 indicators on the front panel to make sure they are green. On the back panel of the sensor, make sure the IN OK and the FAN OK indicators are green and the OUT FAIL indicator is off.

Removing and Installing the Fan Module

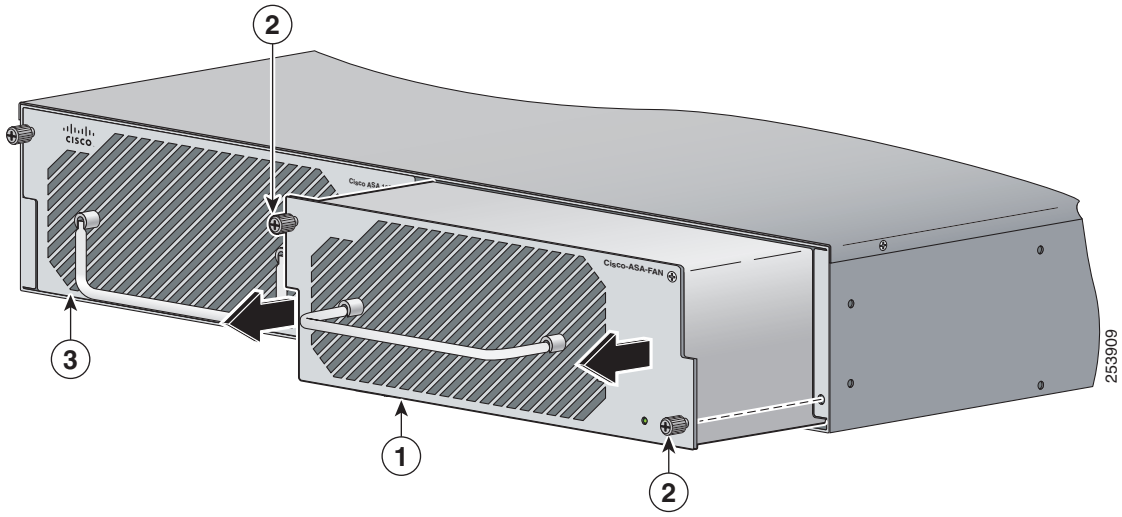
The IPS 4510 ships with one power supply module and one fan module installed, and the IPS 4520 ships with two power supply modules instead of a power supply module and a fan module. You can replace the fan module in the IPS 4510 if necessary. The fan module is hot-pluggable. You can install or replace the fan module without powering down the sensor, as long as the power supply module is active and functioning correctly. To maintain airflow, both bays must be populated by either a power supply module and a fan module or two power supply modules.

Note A power supply module is required for the system to operate.

Caution If you remove a power supply or fan module, replace it immediately to prevent disruption of service.

To remove and install the fan module, follow these steps:

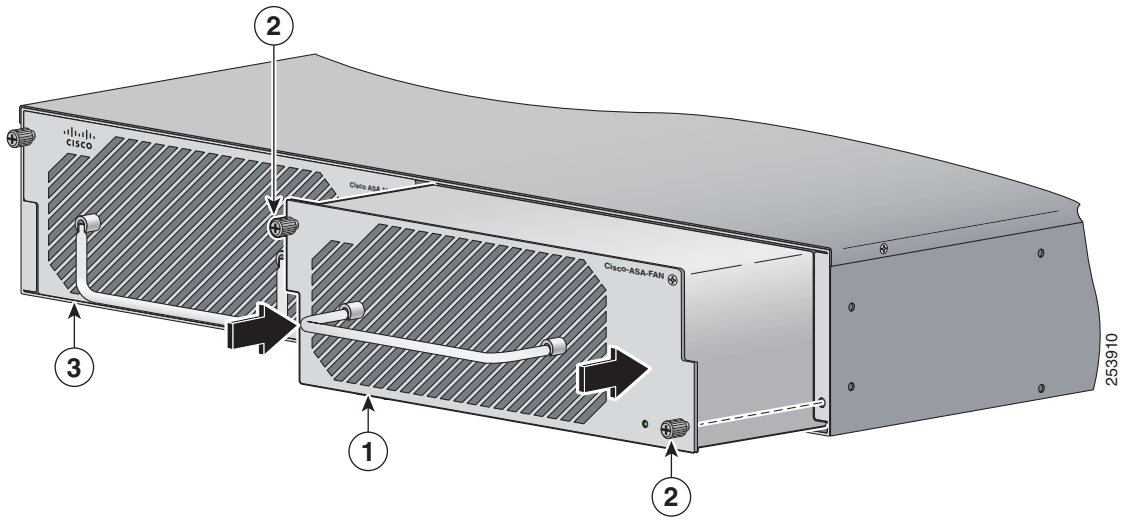
Step 1 From the right-hand side of the back panel of the sensor loosen the fan module screws until they release. The screws are captive in the front panel.



1	Fan module and fan module handle	**2**	Fan module screws
3	Power supply module		

Step 2 Remove the fan module by grasping the handle and pulling the fan module away from the chassis.

Step 3 Install the new fan module by aligning it with the fan module bay and pushing it into place until it is seated.



1	Fan module and fan handle	**2**	Fan module screw
3	Power supply module		

Step 4 Tighten the captive screws.

Step 5 Verify that the fan indicator on the lower right-hand of the back panel is green.

Installing the Slide Rail Kit Hardware

Before installing the appliance in the slide rail kit, you must install the slide rail kit hardware.

To install the slide rail kit hardware on the IPS 4510 and IPS 4520, follow these steps:

Step 1 Power off the appliance.

Step 2 Remove the power cable from the appliance.

Step 3 If your appliance has the fixed cable management brackets, do the following:

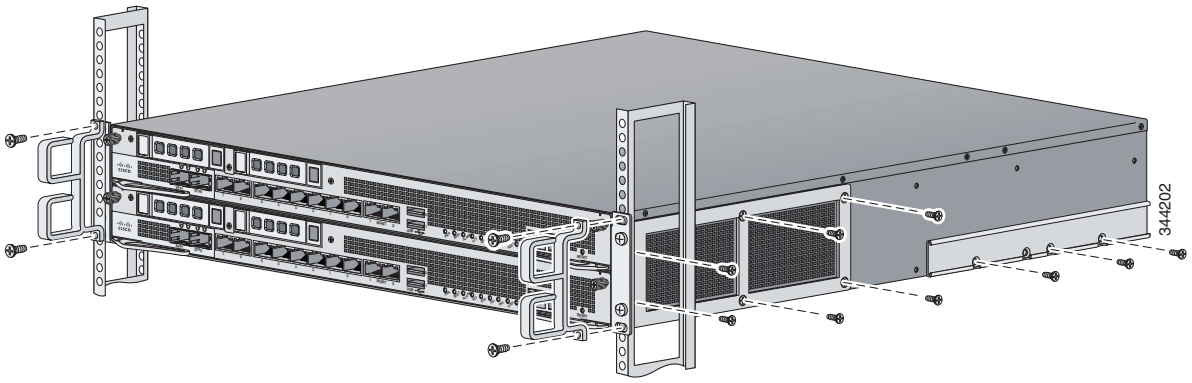
a. Remove the cable management brackets from the front sides of the appliance.

b. Remove the appliance from the rack.

c. Remove the front brackets, left and right side brackets, and left and right rear brackets from the appliance.

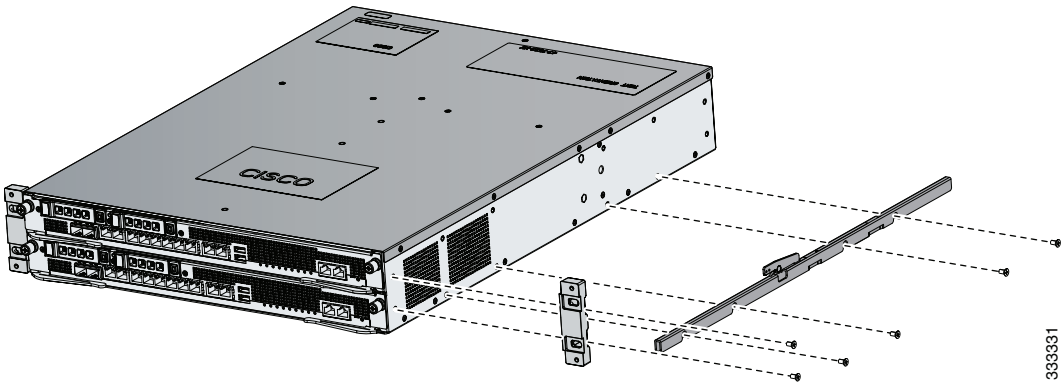
Figure 7-6 shows all of the brackets that can be removed for the fixed rack mount.

Figure 7-6 Brackets for the Fixed Rack Mount



Step 4 Attach the slide rail kit hardware (front brackets and left and right side brackets) to the appliance. The brackets are labelled RIGHT and LEFT. This prepares the appliance for installation in the rack using the slide rail kit. Figure 7-7 shows all of the brackets you need to install on the appliance.

Figure 7-7 Brackets for the Slide Rail Kit



Installing and Removing the Slide Rail Kit

After you have installed the slide rail kit hardware, you can install the slide rail kit. This section describes how to install and remove the slide rail kit for the IPS 4510 and IPS 4520, and contains the following sections:

- Package Contents, page 7-22
- Installing the Chassis in the Rack, page 7-22
- Removing the Chassis from the Rack, page 7-28

Package Contents

The slide rail kit package contains the following items:

- Left and right slide rails
- Six #10-32 screws
- Two #10-32 cage nuts

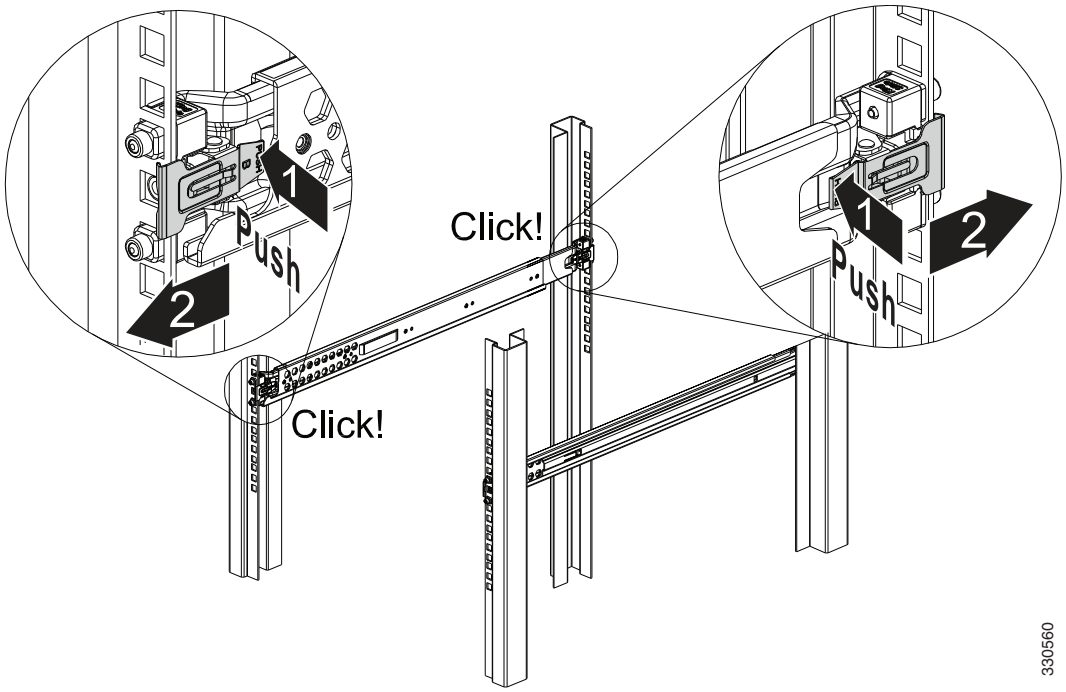
Installing the Chassis in the Rack

To install the chassis in the rack using the slide rail kit, follow these steps:

Step 1 Press the latch on the end of the slide rail and push forward to engage the pins in the rack until the clip clicks and locks around the rack post (Figure 7-8).

Note The slide rails are labeled ‘left’ and ‘right.’ Install the left slide rail on the left side of the rack and the right slide rail on the right side of the rack.

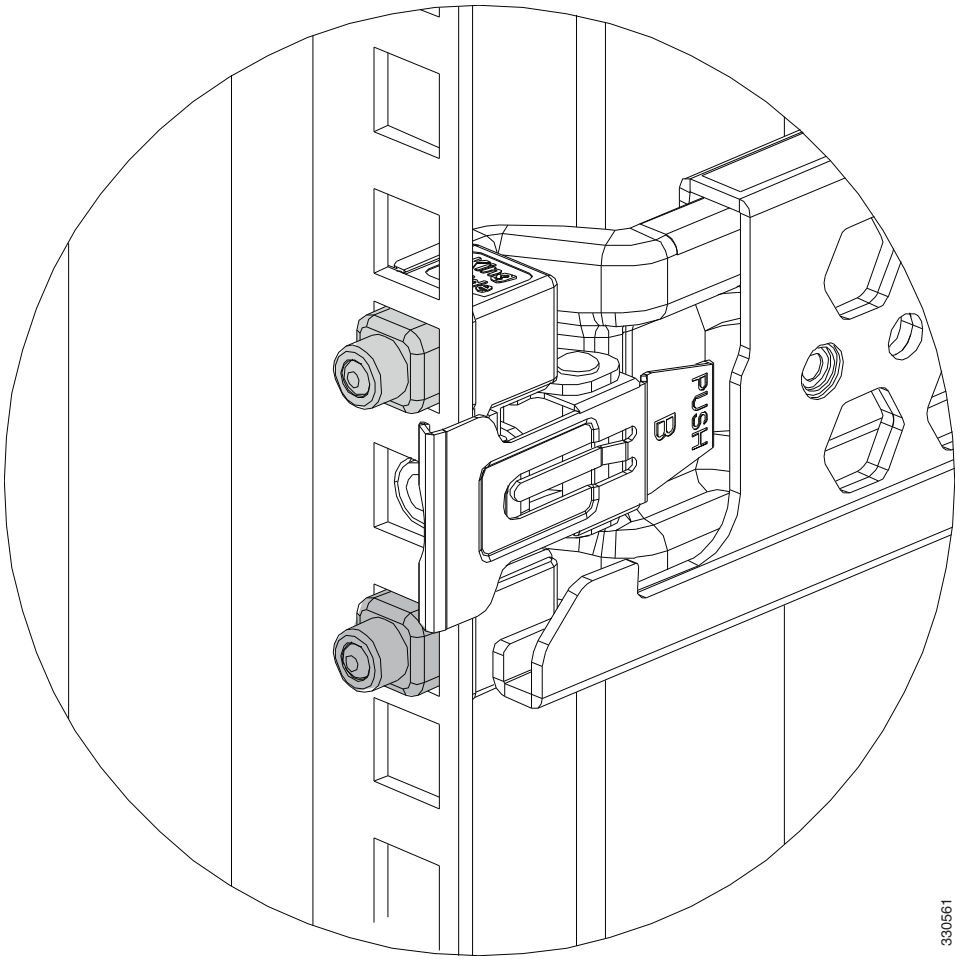
Figure 7-8 Press and Push to Install the Slide Rail



For square hole posts, square studs must be attached fully inside the square hole on the rack rail. For threaded hole posts, the round stud must fully enter inside the threaded hole rack rail (Figure 7-9).

Note After installing the square or round studs into the rack post, verify that the locking clip is fully seated and secure against the rack rail.

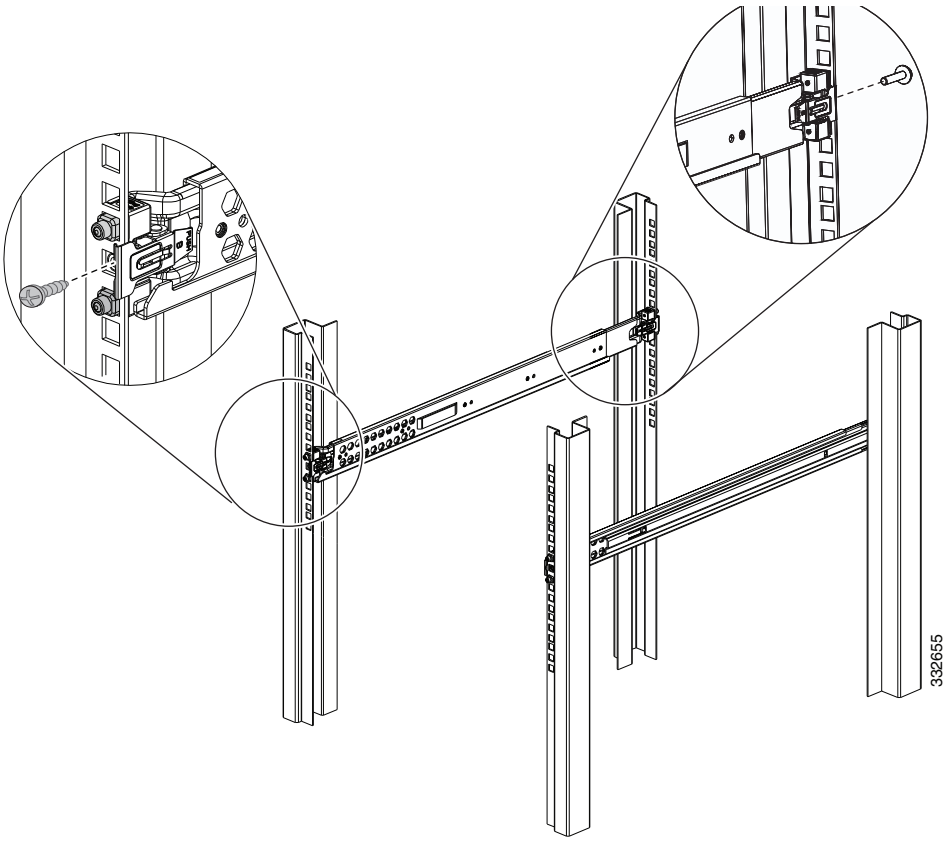
Figure 7-9 Square Studs for Square Hole Post



Step 2 Secure the slide rail to the rack post with the provided #10-32 screws by tightening the screws at the front and rear end of the slide rail to the rack post (Figure 7-10). Both front and rear rack posts must be secured with the screws before you install the chassis.

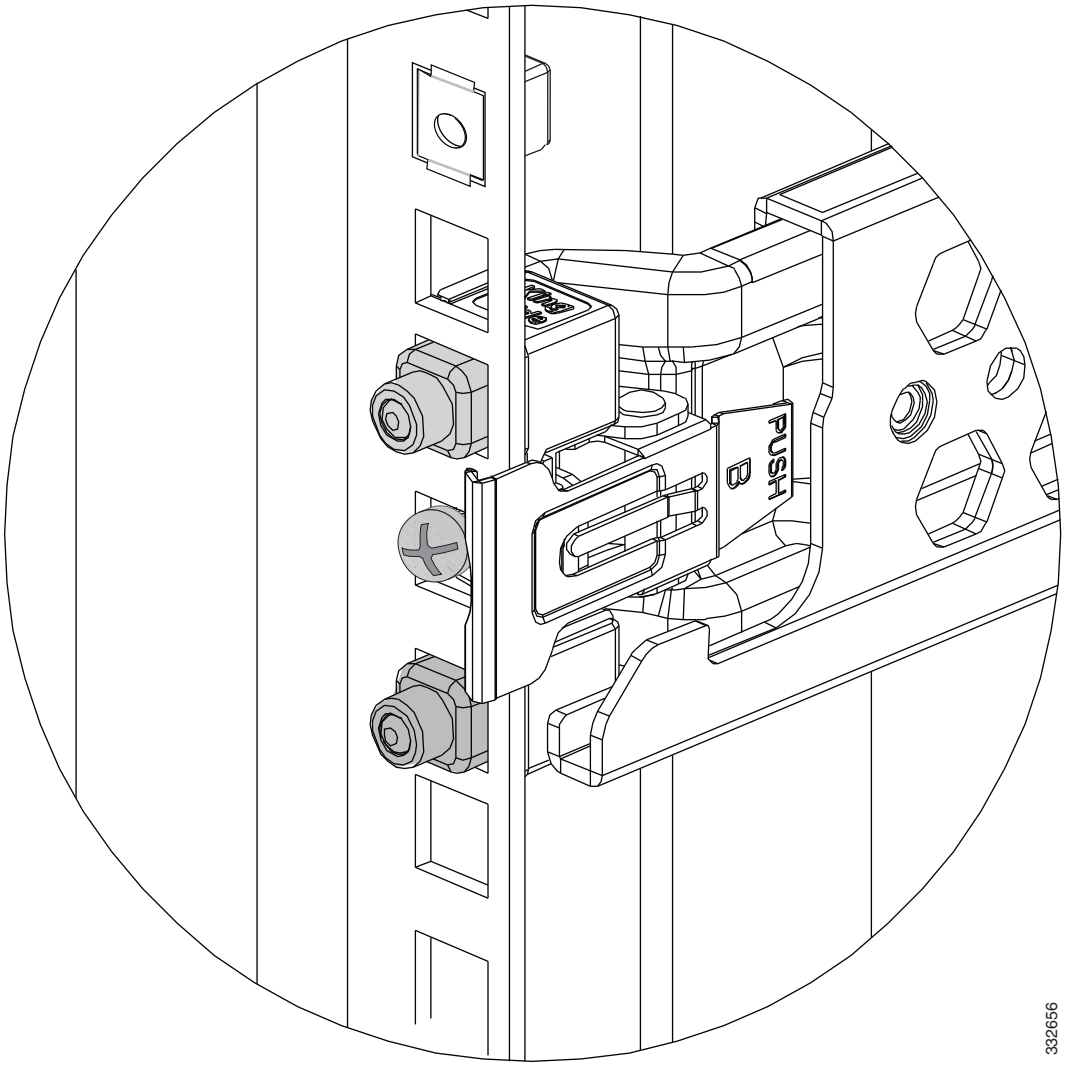
Caution It is critical that the screws are installed and secured to the front and rear end of the slide rails.

Figure 7-10 Securing the Slide Rail to the Rack Post



Step 3 For square hole racks, install one #10-32 cage nut on each side of the rack rail (Figure 7-11). Leave one square hole spacing above the slide rail. The cage nut will be used later to secure the chassis to the rack post. For threaded hole racks, no additional hardware is needed.

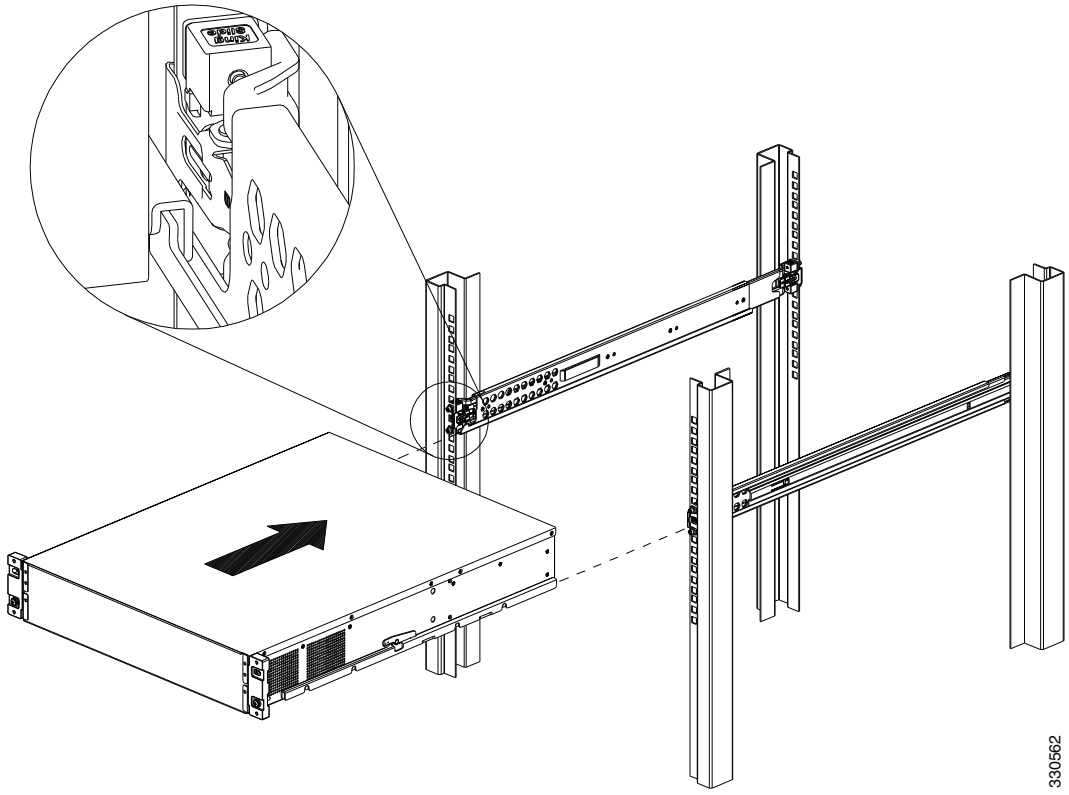
Figure 7-11 Installing the #10-32 Cage Nuts



Step 4 Install the chassis on the outer rail. Make sure that the U-bars are aligned to the outer rail evenly, then push the chassis into the rack (Figure 7-12).

Caution Before installing the chassis, make sure that the slide rails are properly installed and that the perforated holes on the outer slide rail align with the perforated holes on the chassis.

Figure 7-12 Installing the Chassis on the Outer Rail

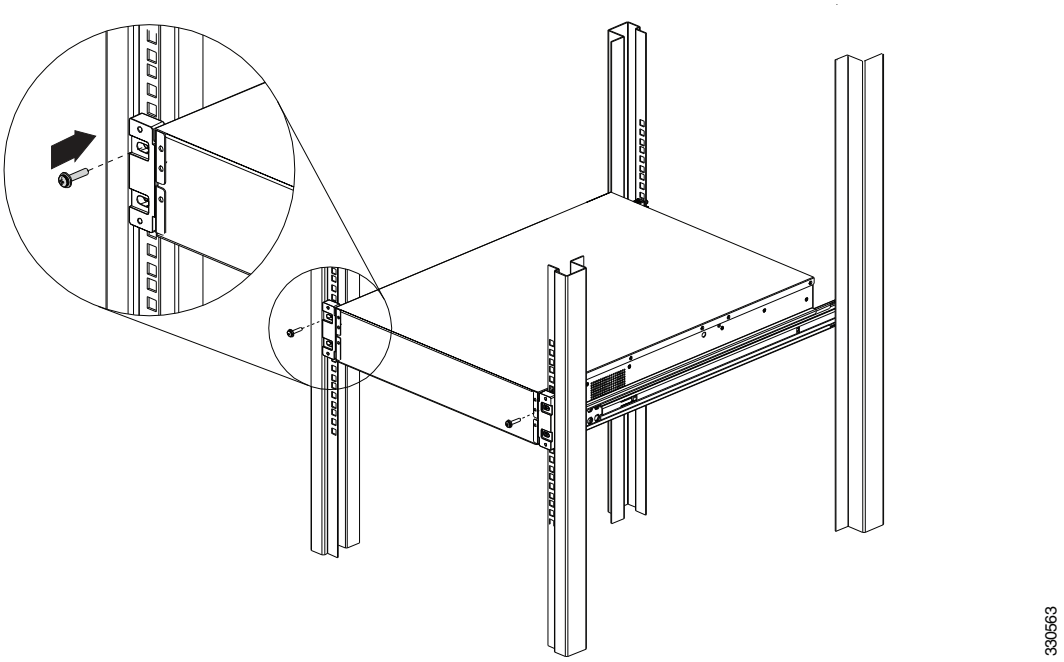


Step 5 Tighten the screws to secure the chassis to the rack (Figure 7-13). Use the upper hole to secure the chassis to the rack.

a. For square hole racks, secure the chassis to the rack by installing the #10-32 screw into the cage nut that you installed in Step 3.

b. For threaded hole racks, secure the front of the chassis by installing the #10-32 screws into the rack threaded hole.

Figure 7-13 Securing the Chassis to the Outer Rail

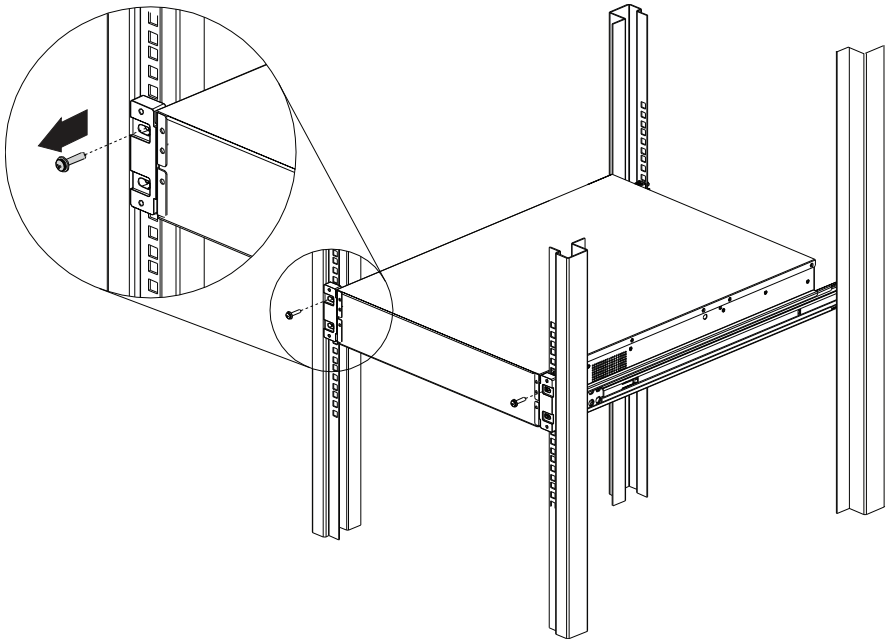


Removing the Chassis from the Rack

To remove the chassis from the rack, follow these steps:

Step 1 Remove the screws from the front brackets of the rail post (Figure 7-14).

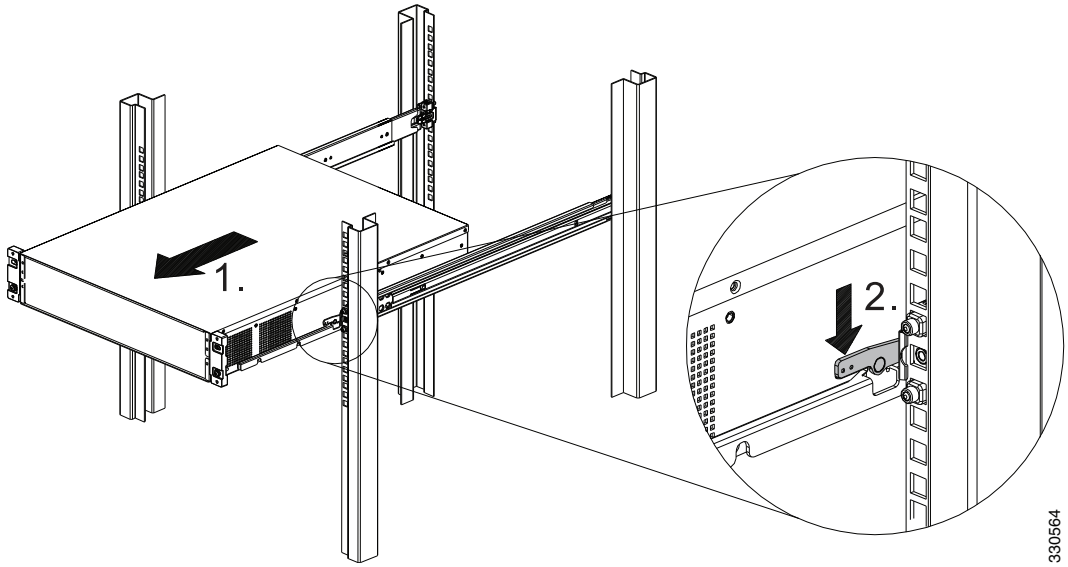
Figure 7-14 Removing the Screws from the Outer Rail



Step 2 Pull out the chassis to the locked position.

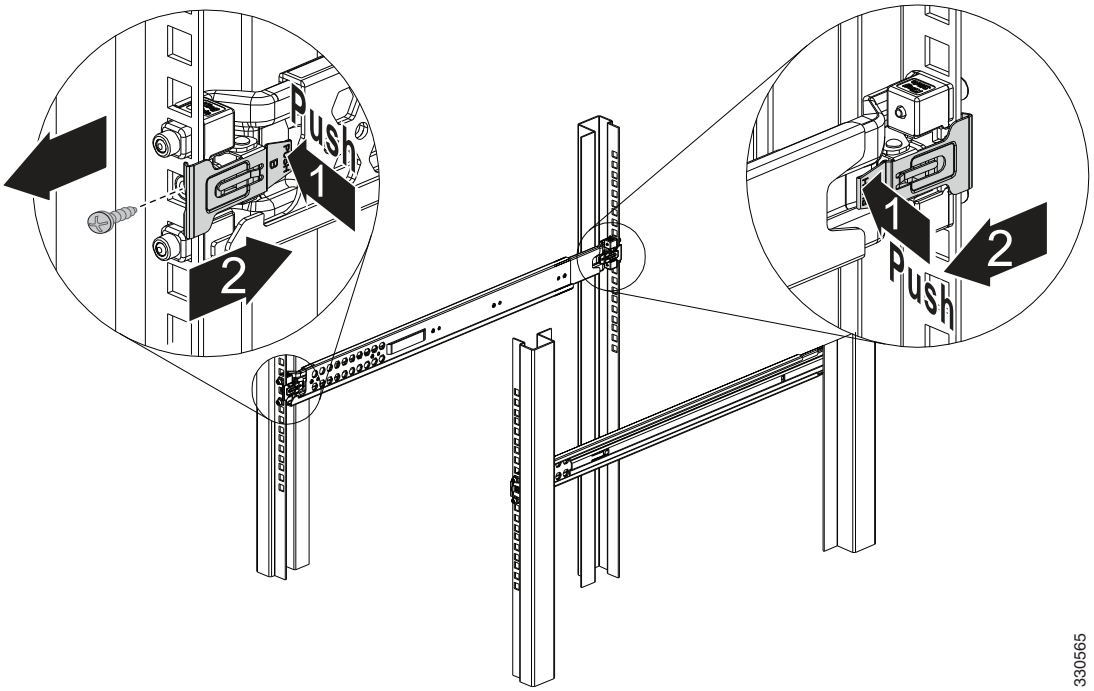
Step 3 Press down the release hook to remove the chassis from the rack (Figure 7-15).

Figure 7-15 Pressing Down the Release Hook



Step 4 Remove the two screws from the front and rear of the rack that are securing the slide rail, and release the latch and pull out the rails (Figure 7-16).

Figure 7-16 Releasing the Latch to Pull Out the Rails



Rack-Mounting the Chassis Using the Fixed Rack Mount

If you are not able to use the slide rail kit in your rack installation, an optional fixed rack mount solution is available. You can install fixed front and rear rack mount brackets on the ASA 5585-X so that you can easily mount it in a rack.

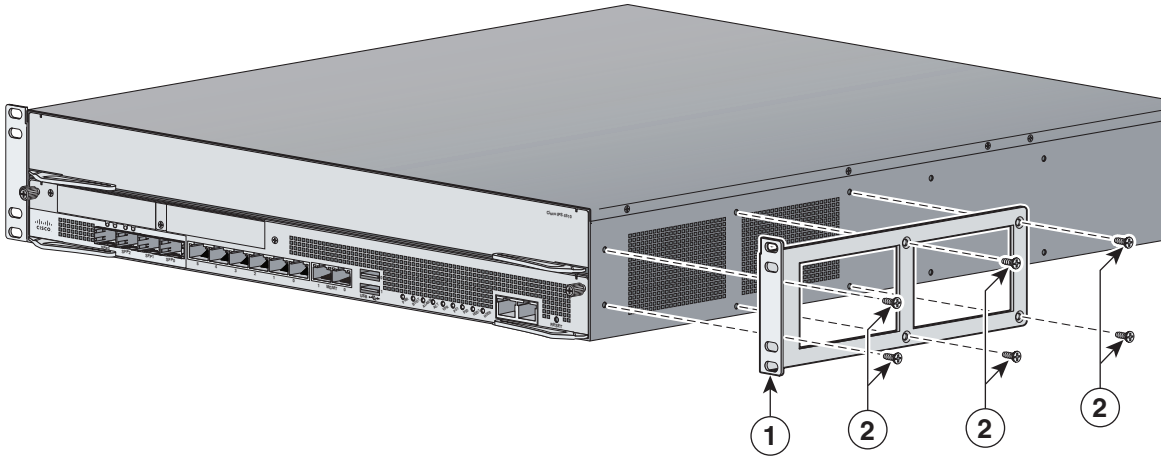
The IPS 4510 and the IPS 4520 ship with front rack mount brackets so that you can easily mount them in a rack.

To install the rack mount brackets on the sensor, follow these steps:

Step 1 If the sensor is already operational and not rack-mounted, or if you are replacing one sensor with another sensor, do the following:

- Power off the sensor.
- Remove the power cable from the sensor.
- Remove the old sensor from the rack.

Step 2 Position the front bracket on the side of the sensor and line up the bracket screws with the screw holes on the sensor.



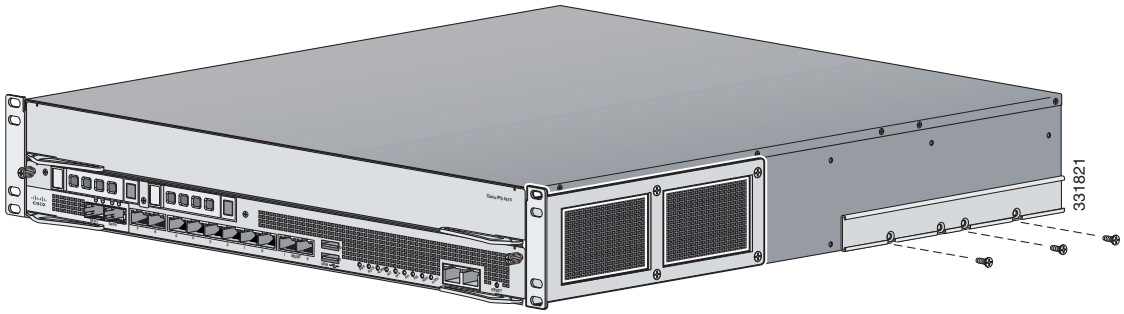
1	Bracket	**2**	Bracket screws

Step 3 Tighten the screws in to the chassis.

Step 4 Repeat the procedure on the other side of the chassis.

Step 5 Mount the chassis in a rack. Go to Step 12. If using the optional slide rails, go to Step 6.

Step 6 (Optional) Attach one of the rear brackets using three M4 screws.

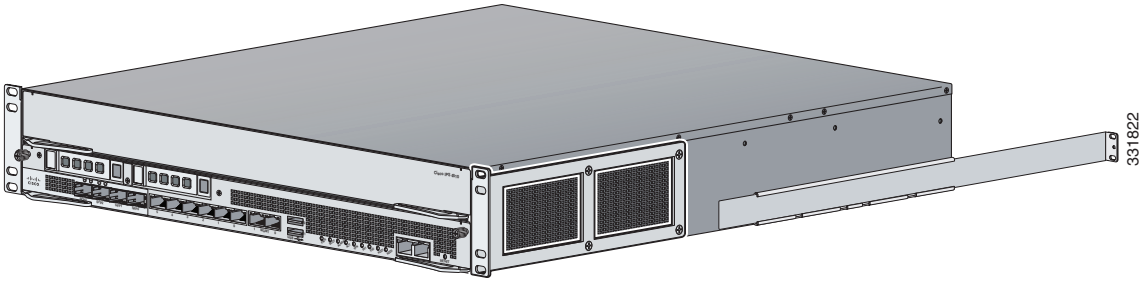


Step 7 (Optional) Repeat the procedure to attach the second bracket to the other side of the chassis.

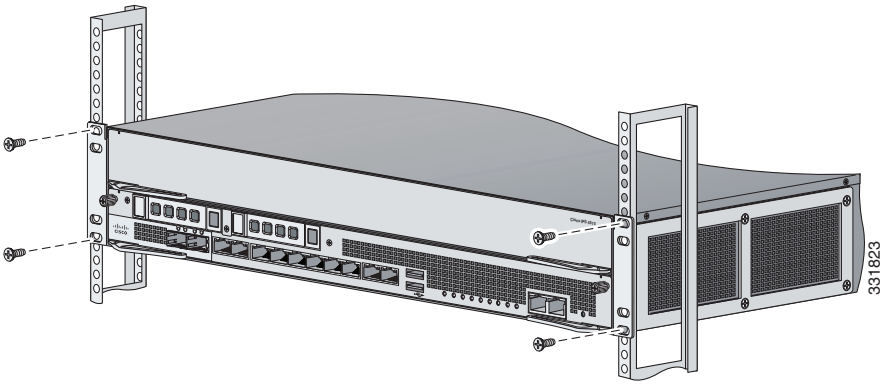
Step 8 (Optional) Measure the distance between the front and rear rack rails and select the proper slide-mount brackets.

Note The slide-mount brackets let you install the rear of the chassis to the rear rack rails. The brackets are designed to slide within the installed rear brackets and accommodate a range of rack depths.

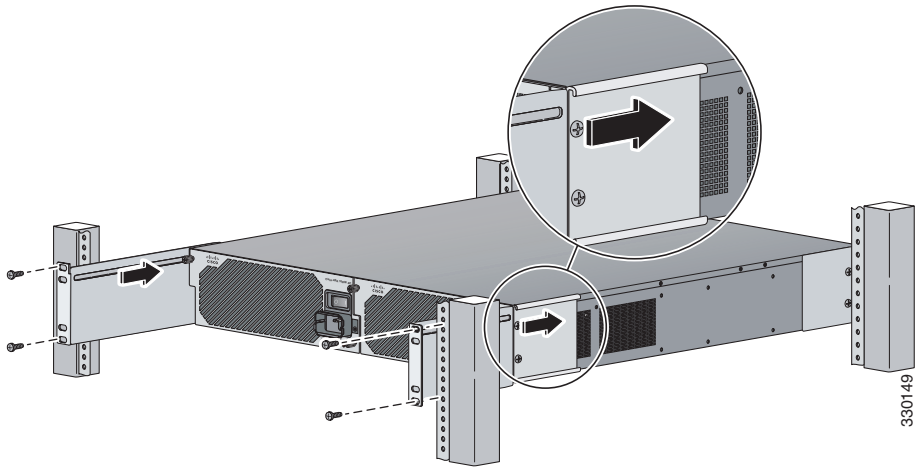
Step 9 (Optional) Install the proper slide-mount brackets on to the rear bracket on the chassis.



Step 10 (Optional) For added security, screw in the front brackets to the rack.



Step 11 (Optional) Secure the slide brackets to the corresponding holes in the rear rack rail using the screws provided.



Step 12 Reattach the power cable to the sensor.

Step 13 Power on the sensor.

Installing the Cable Management Brackets

The IPS 4510 and IPS 4520 ship with two cable management brackets that you can use to organize the cables connected to the sensor.

To install the cable management brackets on the sensor, follow these steps:

Step 1 Power off the sensor.

Step 2 Remove the power cable from the sensor.

Step 3 Position the cable management brackets on the front side of the sensor, and line up the bracket screws with the screw holes on the sensor. Figure 7-17 shows the cable management bracket for the fixed rack mount and Figure 7-18 on page 7-34 shows the cable management bracket for the slide rail.

Figure 7-17 Cable Management Brackets for the Fixed Rack Mount

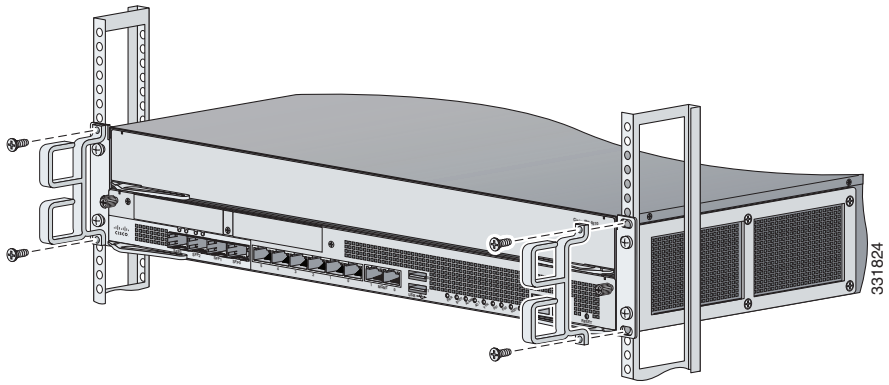
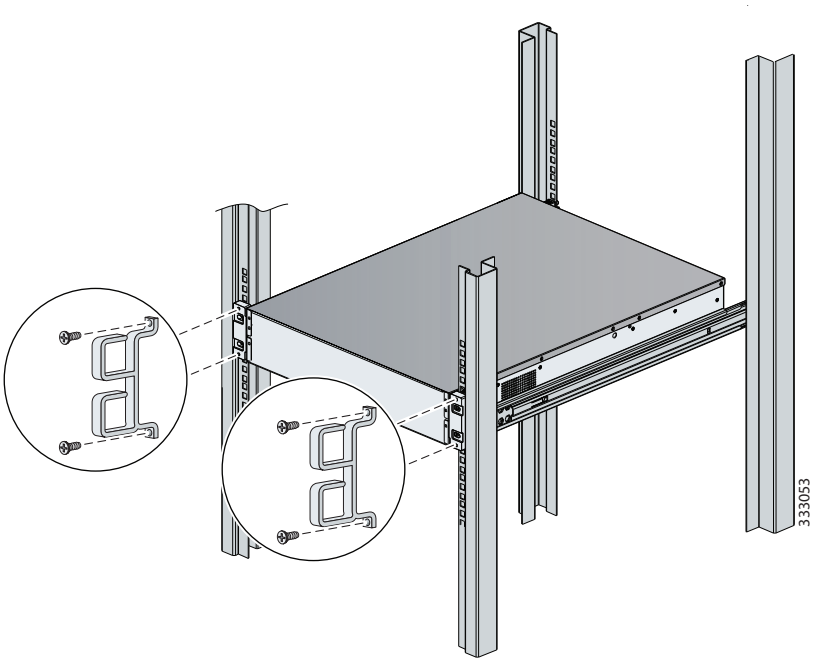


Figure 7-18 Cable Management Brackets for the Slide Rail



Step 4 Tighten the screws in to the rack.

Step 5 Reattach the power cable to the sensor.

Step 6 Organize the cables through the cable management brackets on the sensor.

Step 7 Power on the sensor.

Troubleshooting Loose Connections

Perform the following actions to troubleshoot loose connections on sensors:

- Make sure all power cords are securely connected.
- Make sure all cables are properly aligned and securely connected for all external and internal components.
- Remove and check all data and power cables for damage. Make sure no cables have bent pins or damaged connectors.
- Make sure each device is properly seated.
- If a device has latches, make sure they are completely closed and locked.
- Check any interlock or interconnect indicators that indicate a component is not connected properly.
- If problems continue, remove and reinstall each device, checking the connectors and sockets for bent pins or other damage.

IPS 4500 Series Sensors and the SwitchApp

The 4500 series sensors have a built in switch that provides the external monitoring interfaces of the sensor. The SwitchApp is part of the IPS 4500 series design that enables the InterfaceApp and sensor initialization scripts to communicate and control the switch. Any application that needs to get or set information on the switch must communicate with the SwitchApp. Additionally the SwitchApp implements the following:

- Detects bypass—When the SensorApp is not monitoring, the SwitchApp places the switch in bypass mode and then back to inspection mode once the SensorApp is up and running normally.
- Collects port statistics—The SwitchApp monitors the switch and collects statistics on the external interfaces of the switch for reporting by InterfaceApp.
- Handles the external interface configuration—When you update the interface configuration, the configuration is sent to the InterfaceApp, which updates the interface configuration for SwitchApp, which then forwards that configuration on to the switch.

For More Information

For detailed information about the IPS system architecture, refer to System Architecture.